UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,771	03/25/2004	John M. Cioffi	8241P005	5887

8791 7590 09/27/2007

BLAKELY SOKOLOFF TAYLOR & ZAFMAN
1279 OAKMEAD PARKWAY
SUNNYVALE, CA 94085-4040

EXAMINER	
RIYAMI, ABDULLA A	

ART UNIT	PAPER NUMBER
2616	

MAIL DATE	DELIVERY MODE
09/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/808,771	CIOFFI, JOHN M.	
	Examiner	Art Unit	
	Abdullah Riyami	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/17/2005 and 2/6/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 15 and 28 are objected to because of the following informalities:

In claim 15, line 3, the occurrence of "transmissions" seems to refer to "transmissions" as recited in claim 14, line 8. If this is true, it is suggested to change "transmissions" to –the transmissions--.

In claim 28, line 1, the occurrence of "vectoring transmissions" seems to refer to "vectoring transmissions" as recited in claim 26, line 4. If this is true, it is suggested to change "vectoring transmissions" to –the vectoring transmissions--. Similar problem exists in claim 29, line 1.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1, 7, 10, 14, 15, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, and 35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the segment" in line 4. There is insufficient antecedent basis for this limitation in the claim. Similar problem exists in line 5, (claim 7, line 2), (claim 10, lines 2 and 3), (claim 14, lines 6 and 7), (claim 15, line

3), (claim 20, lines 2 and 3), (claim 21, lines 4, 7, 12, 13, and 15), (claim 22, line 2), (claim 23, line 2), (claim 24, line 1), (claim 25, line 1), (claim 26, line 4), (claim 27, line 1), (claim 28, line 1), (claim 29, line 1), (claim 30, line 1), (claim 31, line 2), (claim 35, line 2).

Claims 6-13 are rejected because they depend on claim 1.

Claims 15-20 are rejected because they depend on claim 14.

Claims 22-25 are rejected because they depend on claim 21.

Claims 27-36 are rejected because they depend from claim 26.

Claim 2 recites the limitation "the vectoring means" in lines 3 and 4. There is insufficient antecedent basis for this limitation in the claim.

Claims 3-5 are rejected because they depend on claim 2.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-7, 10-17, 20-26, and 35-36 are rejected under 35 U.S.C. 102(e) as being anticipated by Tsatsanis et al. (US 2006/0056522 A1).

In claim 1, Tsatsanis et al. discloses a DSL system comprising:

a multiple loop segment, comprising K bonded loops providing up to (2K-1) communication channels (see paragraphs 48-50 and see figure 2, block 208 and figure 3); and a controller coupled to the segment and configured to provide control signals used to operate the segment as a vectored system (see paragraph 20, 54, 70-81, and 140, figure 5 and figure 11, block 1104 and 1108).

In claim 2, Tsatsanis et al. discloses a DSL system wherein the controller comprises vectoring control means and further wherein a customer vectoring unit (CVU) is coupled to a first end of the segment and to the vectoring means (see figure 2, blocks 210-1 and 216-1, figure 11, blocks 1104 and 1108) and further wherein a pedestal VU (PVU) is coupled to a second end of the segment and to the vectoring means (see figure 2, blocks 204-1 and 214-1, figure 11, blocks 1104 and 1108).

In claims 3 and 4, Tsatsanis et al. discloses a DSL system wherein the PVU is in a pedestal or first pedestal (see figure 2, blocks 204-1 to 204-N) and further wherein the CVU is in a customer premises or second pedestal (see figure 2, blocks 210-1 to 210-N).

In claim 5, Tsatsanis et al. discloses a DSL system wherein the PVU comprises a vector signal-processing module coupled to the controller (see figure 11, block 1104 and figure 2, block 214-1) and further wherein the CVU comprises a vector signal-processing module coupled to the controller (see figure 11, block 1104 and 1108 and figure 2 block 216-1).

In claim 6, Tsatsanis et al. discloses a DSL system wherein at least one of the communication channels is operated using an expanded frequency spectrum (see paragraph 70, and figure 2, block 208).

In claim 7, Tsatsanis et al. discloses a DSL system wherein the controller comprises means for controlling the frequency bandwidth used in transmitting data across the segment (see paragraphs 70-71).

In claim 10, Tsatsanis et al. discloses a DSL system comprising a first impedance matching circuit coupled to a first end of the segment (see figure 12); (see figure a second impedance matching circuit coupled to a second end of the segment (see figure 12).

In claim 11, Tsatsanis et al. discloses a DSL system, wherein the DSL system is an ADSL system (see paragraph 48, line 5).

In claim 12, Tsatsanis et al. discloses a DSL system, wherein the DSL system is a VDSL system (see paragraph 48, line 5).

In claim 13, Tsatsanis et al. discloses a DSL system, wherein the loops are bonded using one of the following bonding protocols: TDIM bonding; Ethernet bonding; ATM bonding; or the G.bond protocol (see twisted pair, paragraph 49, line 5).

In claim 14, Tsatsanis et al. discloses a DSL system comprising:

a multiple loop segment, comprising K bonded loops providing up to (2K-1) communication channels on (2K- 1) wires (see paragraphs 48-50 and see figure 2, block 208 and figure 3);

a first vectoring unit coupled to a first end of the segment and comprising a first vector signal processing module (see figure 2, blocks 204-1 and 214-1, figure 11, blocks 1104 and 1108); a second vectoring unit coupled to a second end of the segment and comprising a second vector signal processing module (see figure 2, blocks 210-1 and 216-1, figure 11, blocks 1104 and 1108); and wherein the first and second vectoring units provide vectored transmissions across the segment (see paragraph 20, 54, 70-81, and 140).

In claim 15, Tsatsanis et al. discloses a DSL system comprising a controller coupled to the first (see figure 2, blocks 204-1 and 214-1, figure 11, blocks 1104 and 1108) and second vectoring units (see figure 2, blocks 204-1 and 214-1, figure 11, blocks 1104 and 1108), wherein the controller comprises vectoring control means, wherein the vectoring control means assists in regulating transmissions across the segment see paragraph 20, 54, 70-81, and 140).

In claim 16 and 17, Tsatsanis et al. discloses a DSL system wherein the first vectoring unit is in a first pedestal (see figure 2, blocks 204-1 to 204-N) and further wherein the second vectoring unit is in a second pedestal or customer premises (see figure 2, blocks 210-1 to 210-N).

In claim 20, Tsatsanis et al. discloses a DSL system comprising a first impedance matching circuit coupled to a first end of the segment (see figure 12); (see figure a second impedance matching circuit coupled to a second end of the segment (see figure 12).

In claim 21, Tsatsanis et al. discloses a DSL system comprising: a multiple loop segment, comprising K bonded loops providing up to (2K-1) communication channels on (2K-1) wires (see paragraphs 48-50 and see figure 2, block 208 and figure 3);

a first impedance matching circuit coupled to a first end of the segment (see figure 12); a first vector signal processing module coupled to the first impedance matching circuit (see figure 2, blocks 204-1 and 214-1, figure 11, blocks 1104 and 1108 and figure 12); a second impedance matching circuit coupled to a second end of the segment (see figure 12); a second vector signal processing module coupled to the second impedance matching circuit (see figure 2, blocks 210-1 and 216-1, figure 11, blocks 1104 and 1108 and figure 12); and

a controller coupled to the first and second vector signal processing modules (see paragraph 20, 54, 70-81, and 140, figure 5 and figure 11, block 1104 and 1108) comprising: means for collecting data regarding transmissions across the segment (see paragraph 20, 54, 70-81, and 140); and means for controlling vectoring of transmissions across the segment (see paragraph 20, 54, 70-81, and 140); wherein the first and second vector signal processing modules process transmissions across the segment (see paragraph 20, 54, 70-81, and 140).

(The additional features of claim 21 regarding the impedance matching circuits are normal design options).

In claim 22, Tsatsanis et al. discloses a DSL system wherein the first and second vector signal processing modules provide two-sided vectoring of transmissions across the segment (see figure 5).

In claim 23, Tsatsanis et al. discloses a DSL system wherein the first and second vector signal processing modules provide one-sided vectoring of transmissions across the segment (see figure 5).

In claim 24, Tsatsanis et al. discloses a DSL system wherein the segment couples customer premises equipment to a pedestal (see figure 2).

In claim 25, Tsatsanis et al. discloses a DSL system wherein the segment couples a first pedestal to a second pedestal (see figure 2).

In claim 26, Tsatsanis et al. discloses a method of providing high speed DSL service, the method comprising: bonding K loops to provide a multiple loop segment having up to (2K-1) communication channels (see paragraphs 48-50 and see figure 2, block 208 and figure 3); and vectoring transmissions across the segment (see paragraph 20, 54, 70-81, and 140, figure 5 and figure 11, block 1104 and 1108).

In claim 27, Tsatsanis et al. discloses a method of providing high speed DSL service wherein the segment has a first end coupled to a first vectoring unit and a second end coupled to a second vectoring unit (see figure 2).

In claim 28, Tsatsanis et al. discloses a method of providing high speed DSL service, wherein vectoring transmissions across the segment comprises one-sided vectoring (see figure 5).

In claim 29, Tsatsanis et al. discloses a method of providing high speed DSL service, wherein vectoring transmissions across the segment comprises one-sided vectoring (see figure 5).

In claim 30, Tsatsanis et al. discloses a method of providing high speed DSL service, wherein the vectored transmissions across the segment utilize an expanded frequency spectrum on at least one channel (see paragraph 70, and figure 2, block 208).

In claim 31, Tsatsanis et al. discloses a method of providing high speed DSL service, wherein a controller provides vectoring control signals to the segment.

In claim 35, Tsatsanis et al. discloses a method of providing high speed DSL service, providing impedance matching circuits at each end of the segment (see figure 12).

In claim 36, Tsatsanis et al. discloses a method of providing high speed DSL service, wherein the loops are bonded using one of the following bonding protocols: TDIM bonding; Ethernet bonding; ATM bonding; or the G.bond protocol (see twisted pair, paragraph 49, line 5).

Claim Rejections - 35 USC § 103

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 8-9, 18-19, 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsatsanis et al. (US 2006/0056522 A1) in view of Kerpez (US 7106833 B2).

In claims 8 and 9 Tsatsanis et al. discloses a DSL system but does not expressly disclose the controller being a dynamic spectrum manager comprising vectoring control means comprising a computer system.

Kerpez discloses a controller being a dynamic spectrum manager (see figure 2, block 100 and column 6, lines 21-22) comprising vectoring control means (see column 11, lines 45-47) comprising a computer system (see figure 2, block 100).

Tsatsanis et al. and Kerpez are analogous art because they are from the same field of endeavor of management of digital subscriber lines.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use Kerpez's dynamic spectrum manager (see figure 2, block 100 and column 6, lines 21-22) in conjunction with Tsatsanis et al.'s transceivers (see figure 11, block 1100) for the management of digital subscriber lines.

The motivation to combine would have been to have a system for provisioning and correcting crosstalk interference in order to optimize the performance of one or more digital subscriber lines in a cable.

In claim 18, Tsatsanis et al. discloses a DSL system but does not expressly disclose the controller being a dynamic spectrum manager.

Kerpez discloses a controller being a dynamic spectrum manager (see figure 2, block 100 and column 6, lines 21-22).

Tsatsanis et al. and Kerpez are analogous art because they are from the same field of endeavor of management of digital subscriber lines.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use Kerpez's dynamic spectrum manager (see figure 2, block 100 and column 6, lines 21-22) in conjunction with Tsatsanis et al.'s transceivers (see figure 11, block 1100) for the management of digital subscriber lines.

The motivation to combine would have been to have a system for provisioning and correcting crosstalk interference in order to optimize the performance of one or more digital subscriber lines in a cable.

In claim 19, Tsatsanis et al. discloses a DSL system but does not expressly disclose the controller comprises frequency bandwidth control means for regulating the frequency bandwidth used in transmissions across the segment. Kerpez discloses a controller having frequency bandwidth control means for regulating the frequency bandwidth used in transmissions across the segment (see figure 2, block 100 and column 6, lines 21-22).

Tsatsanis et al. and Kerpez are analogous art because they are from the same field of endeavor of management of digital subscriber lines.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use Kerpez's frequency bandwidth control means for regulating the frequency bandwidth used in transmissions across the segment (see figure 2, block 100 and column 6, lines 21-22) in conjunction with Tsatsanis et al.'s transceivers (see figure 11, block 1100) for the management of digital subscriber lines.

The motivation to combine would have been to have a system for provisioning and correcting crosstalk interference in order to optimize the performance of one or more digital subscriber lines in a cable.

In claim 32-34, Tsatsanis et al. discloses a method of providing high speed DSL service, but does not expressly disclose the controller being a dynamic spectrum manager and DSM center and controller.

Kerpez discloses a controller being a dynamic spectrum manager and DSM center and controller (see figure 2, block 100 and column 6, lines 21-22).

Tsatsanis et al. and Kerpez are analogous art because they are from the same field of endeavor of management of digital subscriber lines.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use Kerpez's dynamic spectrum manager and DSM center and controller (see figure 2, block 100 and column 6, lines 21-22) in conjunction with Tsatsanis et al.'s transceivers (see figure 11, block 1100) for the management of digital subscriber lines.

The motivation to combine would have been to have a system for provisioning and correcting crosstalk interference in order to optimize the performance of one or more digital subscriber lines in a cable.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
A	US-4,177,464 A	12-1979	Masak, Raymond J.	342/380
B	US-4,392,220 A	07-1983	Hirosaki et al.	370/479
C	US-5,172,229 A	12-1992	Baker, Daniel G.	348/186
D	US-5,181,198 A	01-1993	Lechleider, Joseph W.	370/286

E	US-5,799,183 A	08-1998	Iwashita, Hidetoshi	707/2
F	US-2002/0041565 A1	04-2002	Valenti et al.	370/201
G	US-2003/0048802 A1	03-2003	Shenoi, Kishan	370/458
H	US-2003/0086514 A1	05-2003	Ginis et al.	375/346
I	US-2004/0157566 A1	08-2004	Fishman, Ilya M.	455/091
J	US-2005/0013379 A1	01-2005	Duvaut et al.	375/259
K	US-2005/0105473 A1	05-2005	Hausman et al.	370/249
L	US-6,901,530 B2	05-2005	Cerami et al.	714/4
M	US-2007/0036207 A1	02-2007	Wang, Xianbin	375/222
N	US-2006/0098725 A1	05-2006	Rhee et al.	375/222
O	US-7,058,707 B1	06-2006	Cerami et al.	709/223
P	US-2006/0171480 A1	08-2006	Erving et al.	375/260
Q	US-2007/0019681 A1	01-2007	Wang, Xianbin	370/493
R	US-2006/0291581 A1	12-2006	Onggosanusi et al.	375/267
S	US-2006/0280238 A1	12-2006	Cioffi et al.	375/222
T	US-7,158,563 B2	01-2007	Ginis et al.	375/224

All of the above are cited to show bonding of loops in digital subscriber lines.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abdullah Riyami whose telephone number is (571) 270-3119. The examiner can normally be reached on Monday through Thursday 8am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Firmin Backer can be reached on (571)272-6703. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AR

FIRMIN BACKER
SUPERVISORY PATENT EXAMINER